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Extract of a Letter from the Rev. W. R. Dawes to the Astronomer Royal.

"I have the pleasure of inclosing an account of my observation of the lunar occultation of *Antares* on the 26th, which was as satisfactory as the wretched condition of the atmosphere would permit. From many other observers, as well as from myself, thanks are due to you for so pointedly calling attention to this phenomenon. I confess I was not previously aware of the peculiarities you mention as having been formerly noticed in the occultations of this star.

"*Wateringbury*, 1856, *March* 31."

On an Occultation of Antares by the Moon, 1856, *March* 26.

By the Rev. W. R. Dawes.

"At $15^h\ 20^m$ G.M.T. I directed my equatoreal refractor of 8 in. aperture to *Antares*, which the bright edge of the moon was approaching. The state of the air was very bad, the star being often puffed out to an enormous size, and exhibiting various brilliant colours. The moon's edge was boiling. After trying several different magnifiers, an equiconvex lens producing a power of 254 was preferred, because with it the small companion was occasionally seen separated from the large star, when, for a few moments, the latter drew itself up into smaller compass. The air would not bear a higher power; and with a lower the small star was constantly enveloped in the blaze of the large one.

"The *time* of the disappearance was not very accurately noted, my attention being directed almost entirely to the appearance of the star. Nothing decidedly remarkable was noticed previous to the disappearance of *Antares*, which took place instantaneously, and precisely at the moon's edge. There was a small depression in the edge at the point of disappearance. The small companion was not discerned at all for about one minute previously. The moon was quite free from cloud.

"The reappearance at the dark edge of the moon was well observed. The equatoreal was not used between the disappearance and reappearance; and being well carried by its driving clock, the phenomenon occurred in the centre of the field, and was seen at the first instant. The small companion appeared instantaneously at its full brightness; but from its diffused condition, it was not possible to form any correct judgment of its magnitude, which, however, could scarcely exceed the 7th. *Its bluish green colour was very conspicuous.* When I had counted about 18 beats of my pocket-chronometer, equal to $7^s{\cdot}2$, *Antares* itself suddenly blazed forth, and completely enveloped its companion in its enormously diffused image. Vision was even worse than at the disappearance; and I could not afterwards obtain a glimpse of the companion, though the strong twilight favoured its visibility.

"I fear there is some uncertainty in the observed interval: for my attention was so absorbed with examining the colour of the

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small star, that the counting was carried on mechanically; and the startling effect of the burst of light at the close increased the tendency to error. But I hope the uncertainty does not exceed one or two beats of the chronometer.

"From the decidedly blue-green tint of the small companion, while *Antares* was still occulted, it seems evident that the colour really belongs to the star, and is not merely the effect of contrast with the deep red of the large star. As far as *artificial* occultation can decide the point, this seems to be the case with many other double stars whose components show a somewhat similar contrast of colours. In the present instance it was a peculiarly favourable circumstance that the *re*appearance happened at the moon's *dark* limb, as the possibility of the judgment of the eye being influenced by the light and colour of the moon itself is thereby precluded. To secure this, I employed a small field of view in the sliding diaphragm of my solar eye-piece.

"From the interest attaching to this object, and the extreme difficulty of procuring reliable measures of it as a double star in these latitudes, I am induced to anticipate the publication of the results I have been able to obtain of some observations of its position and distance. Having accidentally heard, in the spring of 1847, that *Antares* had been discovered to be close double by Professor Mitchell of Cincinnati, but being unacquainted with any particulars respecting the relative proportion of the components or their angle of position, I determined to try, on the first favourable night, what could be made of it with my 6⅓-in. Munich refractor. The following are the results which I obtained in that and the two subsequent years:—

	Pos.	Obs.	Wt.	Dist.	Obs.	Wt.	Power	Mags.	Epoch
	°			″					
a)	273·98	2	4	...	...	...	435	1½.8	1847·297
b)	273·63	9	67	3·471	10	42	435	1½.7½	,, ·299
c)	270·08	5	19	3·642	4	14	252	1½.8	1848·557
d)	271·62	5	20	3·418	4	16	252	1½.7	,, ·591
e)	275·97	5	20	3·247	4	12	375	1½.8	1849·406

Notes.

a) A, *red*; B, *blue*. No doubt about the companion. Became foggy. Observation worth little.

b) A, *red;* B, *purple?* Surprisingly well seen: a most beautiful and delicate object.

c) A, *red;* B, *purplish*. Daylight.

d) A, *red;* B, *very blue*. Daylight. Beautiful object.

e) A, *red;* B, *green*. Occasionally very well seen, but very unsteady.

Mean Result.

P=273°·17; obs. 26; wt. 130; on 5 nights }
D=3″·457; ,, 22; ,, 84; ,, 4 ,, } Mean Epoch, 1848·02

"If the angle of position were nearly coincident with the meridian, it would be almost impossible to observe the small star

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